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Environmental public policy and Navy regulation such as The Pollution Prevention Act of 1990, Executive Order 12856, and OPNAVINST 4110.2 mandate efforts to prevent pollution through source reduction. These requirements will require the systems acquisition process to implement pollution prevention as an integral component. This plan meets OPNAVINST 4110.2/OPNAVINST 4110.2A(Draft) requirements for a Hazardous Material Control & Management (HMC&M) Plan or System Pollution Prevention Plan for the acquisition of the New Attack Submarine (NSSN). The Pollution Prevention Plan for the NSSN includes information on integrating pollution prevention into the systems engineering process and documenting and assessing progress. Pollution prevention actions and HMC&M actions are documented in the Programmatic Environmental Analysis (PEA). Progress in the program assessed through the metrics of reduced releases to the environment and reduced life cycle costs versus the baseline of previous submarine classes. The plan also describes how HMC&M will be integrated into the Integrated Logistic Support Process for accepted

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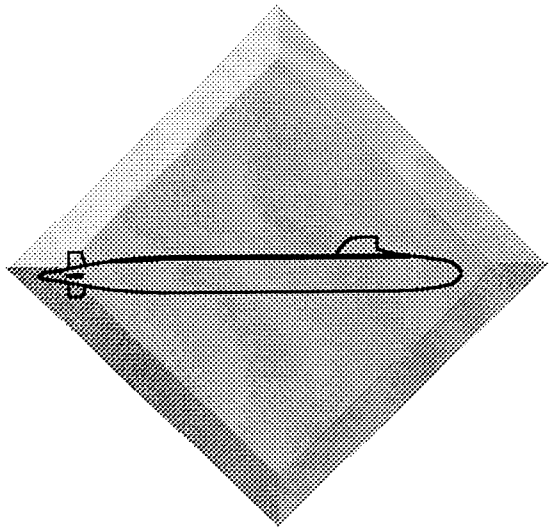

for the

NSSN PROGRAM

21 FEBRUARY 1995

DRAFT

NSSN

Pollution Prevention Plan

Environmental Manager
National Center Building Two
2531 Jefferson Davis Highway
Arlington, VA 22242

21 February 1995

POLLUTION PREVENTION PLAN
FOR
NEW ATTACK SUBMARINE

APPROVAL/COORDINATION SIGNATURES AND DATES

_____ _____
PMO450T DATE
TECHNICAL DIRECTOR
NEW ATTACK SUBMARINE PROGRAM

_____ _____
NAVSEA 03V DATE
DIRECTOR
ENVIRONMENTAL ENGINEERING

_____ _____
NAVSEA 08 DATE
ASSOCIATE DIRECTOR OF REGULATORY AFFAIRS
NAVAL NUCLEAR PROPULSION

_____ _____
NAVSEA 00T DATE
DIRECTOR
OFFICE OF ENVIRONMENT, SAFETY & HEALTH

_____ _____
PMO450 DATE
PROGRAM MANAGER
NEW ATTACK SUBMARINE PROGRAM

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1 GENERAL

1.1 **Purpose**

Recent public policy initiatives such as the Pollution Prevention Act of 1990 and Executive Order (EO) 12856 mandate efforts to prevent pollution through source reduction. The New Attack Submarine (NSSN) Program Office is committed to integrating Pollution Prevention and HMC&M action to achieve a new attack submarine that increases existing mission readiness while ensuring life cycle affordability and protection of environmental quality. Pollution Prevention and HMC&M actions will also contribute to reduction of environmental risks associated with NSSN cost, schedule, and technical requirements.

This plan includes provisions for meeting the current OPNAVINST 4110.2 requirements for a Hazardous Material Control and Management (HMC&M) Plan, as well as OPNAVINST 4110.2A (Draft) requirements for a System Pollution Prevention Plan. This Pollution Prevention plan primarily implements the source reduction element of the established environmental hierarchy, which recognizes source reduction as the preferred means of minimizing the environmental effects or impacts of hazardous materials and hazardous wastes. It is the intent of this plan that NSSN hazardous material and hazardous waste minimization efforts apply the following order of precedence as set forth in the Pollution Prevention Act, EPA Pollution Prevention Policy, and OPNAVINST 5090.1B:

- Source reduction of hazardous materials
- Recycling of hazardous materials/wastes
- Treatment of hazardous materials/wastes
- Disposal or other release into the environment of hazardous materials/wastes

The Pollution Prevention plan is designed to meet the guidance set forth by of the Defense Authorization Act of 1995, which specifically states "as early in the process as feasible, the life-cycle environmental costs for such major defense acquisition programs, including the materials to be used, the mode of operations and maintenance, requirements for demilitarization, and methods of disposal, after consideration of all pollution prevention opportunities and in light of all environmental mitigation measures to which the department expressly commits."

1.2 **Objectives**

1.2.1 *Facilitate Pollution Prevention Action*

The primary objective of the NSSN Pollution Prevention Program is to minimize the environmental impact and cost to the Navy of hazardous materials and hazardous waste throughout the life cycle of the NSSN by facilitating and coordinating Pollution Prevention efforts in the NSSN Program.

1.2.2 *Coordinate Documentation of Pollution Prevention and HMC&M Actions*

The secondary objective of the NSSN Pollution Prevention Program is to coordinate the documentation of Pollution Prevention and HMC&M actions. This documentation, which will flow from the Programmatic Environmental Analysis to the Integrated Program Summary Annex E, serves several purposes. It will:

- Provide support for program decisions made with respect to Hazardous Material
- Credit Navy Pollution Prevention efforts and accomplishments
- Serve as a source of information for continuing program efforts, and as a source of information to subsequent acquisition programs.

1.3 **Scope**

1.3.1 *General*

This Pollution Prevention plan encompasses the entire life cycle of the NSSN which comprises the management of the Pollution Prevention program, Pollution Prevention integration into the systems engineering process, program documentation and assessment, HMC&M integration into the Integrated Logistics Support and the Disposal process. As the program progresses through the acquisition phases, this plan will be updated as required. The documentation of actions called for in this plan will be compiled in the Pollution Prevention appendices to the Programmatic Environmental Analysis, and ultimately summarized in the Integrated Program Summary (Annex E).

This plan describes the NSSN Pollution Prevention Program. It is the NSSN Program Office's approach to effectively integrate Pollution Prevention into the NSSN program to ensure that all appropriate Pollution Prevention and HMC&M actions take place. This plan is the comprehensive road map for program Pollution Prevention activities and applies to all program office and contractor personnel, with the exception of NAVSEA 08. (NAVSEA 08 will ensure that all Pollution Prevention initiatives affecting the propulsion plant design are adequately reflected in the Programmatic Environmental Analysis).

1.3.2 *Scope of Pollution Prevention and HMC&M Actions*

The execution of Pollution Prevention and HMC&M actions described in this plan fall into four areas:

- Hazardous material that is integral to the system: This action falls primarily within the actual design process itself, to those who are most intimately familiar with specifying the material content of systems and components. Effort in this area will lead to

development of a "hazardous material map" of the NSSN and Government Furnished Equipment that will support the disposal concept, the NSSN SHML, the Navy wide SHML, the AUL, facility compliance with the Environmental Planning and Community Right to Know Act of 1986 concerns, and other efforts.

- Hazardous material and hazardous wastes associated with operation, support, and maintenance of the system: This action falls primarily within the Integrated Logistics Support elements of the ship contractor design/build process. Efforts in this area will have a direct impact on the costs associated with the NSSN throughout its operational life cycle. Specific aspects of integrating Pollution Prevention and HMC&M into the Integrated Logistics Support process are outlined in Section 4, "HMC&M Integration into the Integrated Logistics Support Process".

- Hazardous material and hazardous wastes associated with the manufacturing of the NSSN: The NSSN environmental program is interested in preventing pollution throughout the life cycle of the NSSN, including manufacturing. Ship contractor and subcontractor (Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE)) Pollution Prevention efforts related to the manufacture of the submarine will be documented, and the effectiveness of those efforts quantified. This information will be included in the Programmatic Environmental Analysis.

- Hazardous Materials and Hazardous Wastes Associated with Disposal of the NSSN: Although manufacturing processes of contractors providing Commercial Off The Shelf items (CFE and GFE) remain outside of the control of the ship contractor, Pollution Prevention efforts by these suppliers shall be documented in the Programmatic Environmental Analysis. This documentation will serve to credit substantive efforts to prevent pollution, and may provide insight on techniques or information that may be useful to the program in general.

1.3.3 *Definitions*

For the purposes of the NSSN Pollution Prevention program, materials and waste that are the focus of the NSSN Pollution Prevention program are defined as the following:

Hazardous Material

Any material that (a) is regulated as a hazardous material per 49 CFR 173.2, or (b) requires a Material Safety Data Sheet (MSDS) per 29 CFR 1910.1200, or (c) during end use, treatment handling, packaging, storage, transportation, or disposal meets or has components which meet or have the potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A,B,C, or D. Definition has been extracted from OPNAVINST 4110.2A. For purposes of this Pollution Prevention plan, references to hazardous material include extremely hazardous substances, hazardous chemicals, and toxic chemicals.

Hazardous Waste

Any discarded or abandoned hazardous substance as defined in 40 CFR 261 or applicable state regulations where the state has been granted enforcement authority by the Environmental Protection Agency (EPA). The waste may contain any discarded liquid, semi-solid, solid, or containerized gaseous material. Definition has been extracted from OPNAVINST 4110.2A.

Hazardous Release

The term "release" is defined as, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any hazardous material, hazardous chemical, extremely hazardous substance, or toxic chemical. Definition has been extracted from EPCRA Section 329 (8).

Extremely Hazardous Substance

The term "extremely hazardous substance" means a substance on the list described in EPCRA Section 302(a)(2), which states: "Within 30 days after the date of the enactment of this title, the Administrator shall publish a list of extremely hazardous substances. The list shall be the same as the list of substances published in November 1985 by the Administrator in Appendix A of the "Chemical Emergency Preparedness Program Interim Guidance"." Definition extracted from EPCRA Section 329 (3).

Hazardous Chemical

The term "hazardous chemical" has the meaning given such term by section 1910.1200(c) of title 29 of the Code of Federal Regulations, except that such term does not include the following:

(1) Any food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration.

(2) Any substance present as a solid in any manufactured item to the extent exposure to the substance does not occur under normal conditions of use.

(3) Any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public.

(4) Any substance to the extent it is used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual.

(5) Any substance to the extent it is used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.

Definition extracted from EPCRA Section 311 (e).

Toxic Chemical

The toxic chemicals subject to the requirements of this section are those chemicals on the list in Committee Print Number 99-169 of the Senate Committee on Environment

and Public Works, titled "Toxic Chemicals Subject to Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986" (including any revised version of the list as may be made pursuant to subsection (d) or (e)). Definition extracted from EPCRA Section 313 (c).

1.3.4 *Commercial Items*

The specification of end items such that Commercial Off-The-Shelf items are acceptable in the NSSN presents a special challenge for Pollution Prevention efforts. The hazardous material integral to the Commercial Off-The-Shelf items or the hazardous material required for its operation and maintenance may not have been reduced or eliminated through Pollution Prevention actions. The intent of this program is to apply pollution prevention principles outlined in this plan, as is feasible, to Commercial Off-The-Shelf GFE and CFE, through the item's specification.

1.4 **Reference/Requirements Documents**

The actions outlined in this plan are intended to meet the Pollution Prevention and HMC&M requirements of the following:

- EO 12856 (4 Aug 93) Federal Compliance With Right-To-Know Laws and Pollution Prevention Requirements
- DODI 5000.2 (23 Feb 91) Defense Acquisition Management Policies and Procedures
- DOD 5000.2M (Feb 91) Defense Acquisition Management Documentation and Reports
- DODD 4210.15 (27 Jul 89) Hazardous Material Pollution Prevention
- DOD 6050.5 DOD Hazard Communication Program
- SECNAVINST 5000.2 (9 Dec 92) (Draft Revision 27 Jan 94)
- OPNAVINST 4110.2 (20 Jun 89) Hazardous Material Control and Management (OPNAVINST 4110.2A Draft Revision Sep 94, which includes the Navy Hazardous Material Substitution Handbook (Draft))
- MIL-STD-882C (19 Jan 93) System Safety Program Requirements
- Resource Conservation and Recovery Act (RCRA)
- Comprehensive, Environmental, Response, Compensation, and Liability Act (CERCLA)
- Emergency Planning and Community Right to Know Act (EPCRA)
- Occupational Safety and Health Act (OSHA)
- National Environmental Policy Act (NEPA)
- Pollution Prevention Act 1990

1.5 Management of The Pollution Prevention Program

1.5.1 *Organization and Responsibilities*

PMO450T31 (The Environmental Manager) will manage the program and associated documentation. The NSSN Environmental Management Team will identify pollution prevention opportunities in their areas of responsibility, e.g. construction, operation, maintenance, disposal, etc. The ship contractor is responsible for integrating Pollution Prevention actions into the systems engineering process, and ensuring that those actions are properly documented. The following is a detailed list of the members of the Environmental Management Team and the responsibilities to support the NSSN program:

Environmental Manager (PMO450T31)

- Assign and coordinate the activities of all Environmental Management Team members
- Prepare and ensure execution of the NSSN Environmental Management Plan
- Develop and maintain the NSSN Programmatic Environmental Analysis and the NSSN Pollution Prevention Plan (Appendix D to the Programmatic Environmental Analysis)
- Provide environmental awareness training to decision makers of the NSSN program
- Review Design Input Memorandums and Design Decision Memorandums for compliance with the environmental objectives of the NSSN program
- Develop and provide Pollution Prevention related Contract Data Requirements Lists (CDRLs) and Data Item Descriptors (DIDs)
- Track the progress of the Pollution Prevention program and ensure that Pollution Prevention action is properly documented in the Programmatic Environmental Analysis
- Provide NSSN Solid Waste and Commodity Studies in the Programmatic Environmental Analysis (Appendices G-J)
- Coordinate, conduct and attend Environmental Management Team meetings and provide necessary input to team members

Integrated Logistics Support Manager (PMO450TL)

- Attend Environmental Management Team meetings providing input and coordination as necessary to achieve the integration of HMC&M considerations into the Integrated Logistics Support process, as outlined in Section 4 of this plan

Design Manager (PMO450T1)

- Advise on problems and preferred solutions of incorporating design changes that may affect the adoption of Pollution Prevention initiatives
- Attend Environmental Management Team meetings providing input and coordination as necessary to incorporate design changes that may affect Pollution Prevention initiatives

Submarine Monitoring Maintenance and Support (PMO 390)

- Develop the Preliminary NSSN Disposal Concept (Appendix T in the Programmatic Environmental Analysis)
- Coordinate with Puget Sound Naval Shipyard to obtain data

COMSUBLANT/COMSUBPAC

- Establish and implement procedures for a single Pollution Prevention point of contact within their headquarters
- Incorporate Pollution Prevention requirements into periodic evaluations of command and subordinate activities
- Develop facility requirements generated by Pollution Prevention initiatives into facility projects
- Attend Environmental Management Team meetings providing input and coordination as necessary to implement facility requirements generated by Pollution Prevention initiatives

NAVFAC (Naval Facilities Engineering Command)

- Advise and assist PMO450TL in the development of the NSSN Facilities Management Plan, to include incorporation of COMSUBLANT's and COMSUBPAC's special facility requirements generated by Pollution Prevention initiatives for organizational, intermediate, depot level maintenance, or identified by the logistic support analysis
- Provide advice regarding environmental support services available within the NAVFAC community
- Attend the Environmental Management Team meetings and provide input as to new and existing facility requirements generated by Pollution Prevention initiatives

NAVSEA OOT (Office of Environmental Protection)

- Identify pertinent environmental laws, regulations and project future laws, regulations, exemptions, and Navy policies pertinent to all phases of the NSSN program
- Review and approve all National Environmental Policy Act documentation generated for the NSSN program
- Review and approve all environmental documentation for the NSSN including the Programmatic Environmental Analysis, Annex E, and this Pollution Prevention Plan
- Attend the Environmental Management Team meetings and provide input as necessary regarding all pertinent environmental laws, regulations, and Navy policies concerning Pollution Prevention

NAVSEA 03U (Submarine Design and Systems Engineering Group)

- Advise the Environmental Manager of any significant ongoing or completed studies or analyses for submarine design and systems engineering that provide pertinent solutions or alternatives to Pollution Prevention problems and concerns that may cause delays to the NSSN program

- Compile previous and on-going analyses and studies concerning submarine Pollution Prevention alternatives for use within future programs
- Attend Environmental Management Team meetings and provide input concerning Pollution Prevention problems relating to submarine design and systems engineering

NAVSEA 03V (Environmental Engineering Group)

- Attend Environmental Management Team meetings and provide input regarding environmental engineering concerns that may cause delay to the NSSN program
- Advise the Environmental Manager of any significant ongoing or completed studies or analyses for submarine design and systems engineering that provide solutions or alternatives to Pollution Prevention problems

Shipyard and SUPSHIP Management NAVSEA 07E (Environmental and Occupational Safety & Health Office for the Naval & Field Activity Support Directorate)

- Provide NAVSEA and the contractor policy and guidance for the Navy Occupational Safety and Health program
- Provide guidance to the Naval shipyards on Pollution Prevention issues that are pertinent to the life cycle of the NSSN program as they may affect both the shipyards and the NSSN program
- Attend Environmental Management Team meetings and provide input pertinent to the NSSN Pollution Prevention issues that may affect shipyards

NAVSEA 08 (Naval Nuclear Propulsion)

- Attend Environmental Management Team meetings and provide input pertinent to Naval Nuclear Propulsion issues as they affect Pollution Prevention
- Pursue environmental alternatives pertaining to the nuclear propulsion and related systems, that should be implemented into the NSSN Program
- Responsible for environmental compliance issues associated with the propulsion plant as defined in the Definition of Responsibilities for the New Attack Submarine, NAVSEA letter Ser 08E/C92-02150 dated 30 January 1992
- Incorporate to the fullest extent practical, the goals and objectives of this plan into the NAVSEA 08 NSSN Pollution Prevention Plan

NAVSEA 92AE (Assistant for Submarine Environmental Affairs)

- Provide "lessons learned" from previous environmental issues and distribute this guidance
- Attend Environmental Management Team meetings and provide guidance concerning Environmental issues from previous submarines that may be solved/mitigated through Pollution Prevention

NAVSHIPYD, PUGET SOUND, WA (Submarine Disposal Facility)

- Participate in Design/Build Team meetings to ensure compliance in the use of least hazardous materials

- Provide the ship contractor a listing of common hazardous materials discovered during disposal of previous submarine classes
- Identify ship disposal issues that are presently or projected to be environmental concerns
- Provide Submarine Disposal Data to the Environmental Management Team to assist in developing the Puget Sound Submarine Disposal Data (Appendix O in the Programmatic Environmental Analysis
- Attend Environmental Management Team meetings and provide input on Environmental issues of the disposal phase that should be mitigated through Pollution Prevention

NAVSUP (Naval Supply Systems Command)

- Provide guidance and instructions on including Pollution Prevention requirements into contract Statements of Work to the Environmental Manager
- Provide advice regarding Pollution Prevention support resources available with the NAVSUP community
- Attend Environmental Management Team meetings and provide input as necessary where Pollution Prevention problems arise from the NAVSUP community

NSWC (Carderock Division, Naval Surface Warfare Center)

- Investigate hazardous material minimization programs
- Directly support ship contractor with regard to hazardous material minimization programs
- Attend Environmental Management Team meetings and provide input concerning Pollution Prevention in the testing of the NSSN

General Dynamics/Electric Boat Division (Ship Contractor/EB)

- Develop and implement environmental alternatives for hazardous materials as approved by the Environmental Manager
- Incorporate environmental Pollution Prevention alternatives, as approved by NAVSEA, into the NSSN design, integrated logistics support, manufacturing, construction and testing procedures/processes
- Develop a life cycle database (e.g. hazardous material map and an Integrated Logistics Support map) that supports the Pollution Prevention source reduction goals of the NSSN program and facilitates disposal of the NSSN (Appendix P of the Programmatic Environmental Analysis)
- Provide bi-monthly status report (Hazardous Material Information Product) of progress in environmental analysis to the Environmental Manager (Appendix P of the Programmatic Environmental Analysis)
- Perform and document environmental analysis of ship systems in support of Integrated Program Summary Annex E preparation (Appendix P of the Programmatic Environmental Analysis)
- Perform hazardous material life cycle cost analyses of the baseline and alternatives

- Develop and maintain a detailed Ship Contractor Pollution Prevention Plan, incorporating the broad goals and objectives of this plan. Provide to the NSSN Environmental Manager for approval (Appendix L of the Programmatic Environmental Analysis)
- Attend the Environmental Management Team meetings and provide input concerning all aspects of the NSSN as they relate to Pollution Prevention

PARMS (Participating Managers)

- Approve testing of GFE to be delivered to the ship contractor to determine if hazardous material will be used during repair and maintenance
- Provide appropriate Material Safety Data Sheets with GFE to the ship contractor and the supply support manager
- Submit documentation to support the Environmental program from the various areas in which the PARMS are responsible, providing copies of Annex E documentation to the NSSN Environmental Manager (Appendix S of the Programmatic Environmental Analysis)
- Provide a Government Furnished Equipment Hazardous Material Information Product to document hazardous material locations in GFE systems (Appendix R of the Programmatic Environmental Analysis)
- Gather integral hazardous material data and hazardous material for Integrated Logistics Support data from GFE and submit to ship contractor and supply support manager
- Develop and maintain an overall Pollution Prevention plan for the PARMs associated with the NSSN (Appendix S of the Programmatic Environmental Analysis)

SUPSHIPS (Supervisor of Shipbuilding, Repair and Conversion)

- Oversee the design and construction aspects of the NSSN from an environmental perspective
- Execute contractual actions deemed necessary to support the environmental goals of this program
- Review all environmental data to ensure compliance with Navy regulations and current environmental laws

NAVSEA OOL (Legal Affairs)

- Provide a legal interpretation of laws and other regulations as required by the NSSN program
- Provide counsel to PMO 450 on environmental matters not currently addressed by legislation, ordinance, or policy
- Attend Environmental Management Team meetings and provide input concerning current environmental laws and their association with the NSSN program

1.5.2 *Program Integration*

The intention of this plan is that Pollution Prevention considerations will be integrated into all applicable aspects of the program. Pollution Prevention considerations will be an integral part of the design process and include all aspects of the system over its life cycle. Special emphasis will be made with regard to applicable elements of the Logistics Support Analysis, which covers a wide range of Pollution Prevention and HMC&M issues. The Environmental Manager will coordinate the programmatic integration of Pollution Prevention.

2 POLLUTION PREVENTION ACTION

2.1 Integrating Pollution Prevention Into The Systems Engineering Process

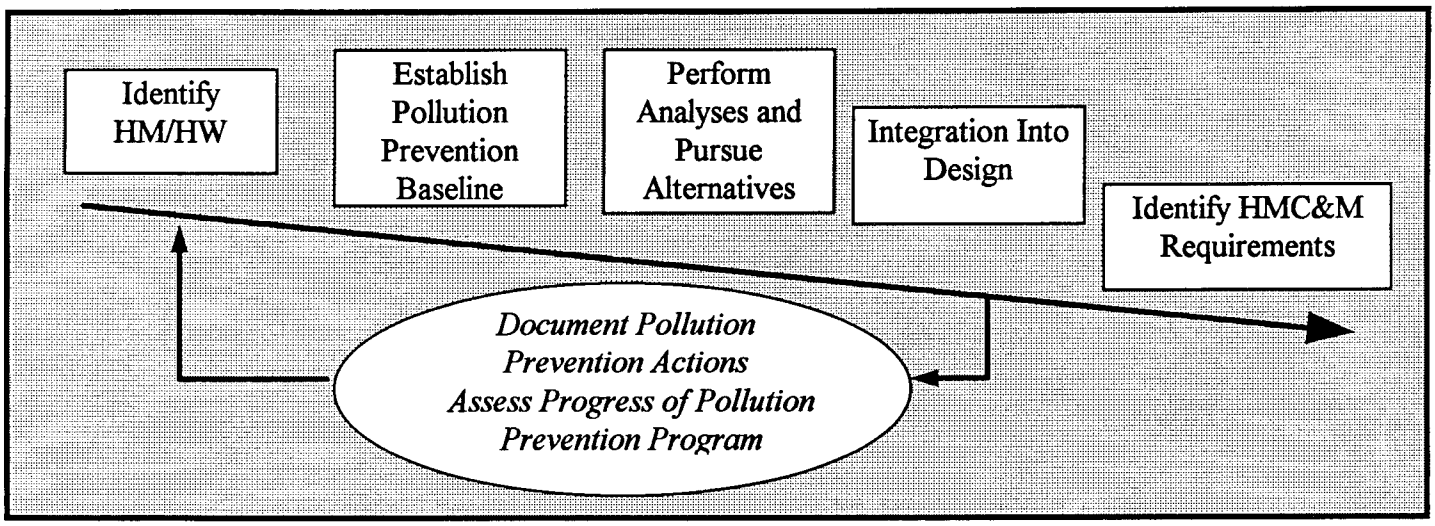
Pollution Prevention action is best implemented during the NSSN systems engineering/system integration process at the discretion of the ship contractor. The ship contractor will define and assign specific internal management responsibilities to comply with the general responsibilities assigned in this pollution prevention plan. The ship contractor's internal organizational management of pollution prevention action functions will be documented in the Ship Contractors Pollution Prevention Program Plan (Appendix L of the Programmatic Environmental Analysis).

The focus of the Pollution Prevention program will be on the ship contractor Systems Integration Teams. These teams will apply Pollution Prevention actions to individual systems under their cognizance. The NSSN Pollution Prevention program will support the Systems Integration Teams in their efforts to identify and analyze hazardous material usage, pursue alternatives, and produce contract data. All non-propulsion systems will be accounted for in the Pollution Prevention documentation.

Participating Managers providing Government Furnished Equipment to the NSSN will ensure that their GFE system contractors apply Pollution Prevention actions to the systems they deliver to the ship contractor. Participating Managers will coordinate the details of integrating their efforts into the Pollution Prevention program with their GFE system contractors, the ship contractor, and the NSSN Environmental Manager. The GFE system contractor will be required to identify and analyze hazardous material usage, pursue alternatives, identify HMC&M requirements and produce Pollution Prevention/HMC&M contract data.

The general Pollution Prevention plan of action is depicted in Figure 1. It is expected that the performance of these actions will occur concurrently as the program progresses. For example, initial efforts to identify hazardous materials in a particular system of the 688I may result in a Pollution Prevention baseline and efforts to pursue alternatives. As the system is further developed, additional hazardous material or waste may be identified for support of the system which can also be compared to the hazardous material required for the support of the comparable 688I baseline system. The pursuit of alternatives should proceed as appropriate, considering reducing and eliminating hazardous materials by incorporating other system engineering trade-offs.

Figure 1: Pollution Prevention Plan of Action



2.2 Identification of Hazardous Material and Hazardous Waste Associated With The Use of, Or In Support of, The NSSN Throughout Its Life Cycle

The identification of hazardous materials and waste is the first and crucial step on the path to minimizing their impact. In addition to internal ship contractor resources, other resources available to assist the SITs in this area are summarized in Section 5, "Pollution Prevention Resources". Resources available include Carderock Division NSWC Shipboard Hazardous Material Database and the NSSN Environmental Compliance Study.

NSSN suppliers shall be required to provide disclosures for Hazardous Material and Hazardous Waste requirements for their products delivered to the NSSN. The requirement to provide these disclosures should be enforced by incorporating appropriate statement of work specifications or clauses into manufacturing and assembly contracts. The manufacturers of Commercial Off-The-Shelf items are also required to reveal the content of hazardous materials in the items that they are to deliver to the NSSN.

Once a hazardous material has been identified in a system, the documentation process for this material shall begin immediately. This initial documentation should include:

- the case #
- the associated item by noun name
- the name of the hazardous material or waste
- database information

MILSPECs referenced by Systems Integration Teams in the ship specifications will be examined for hazardous material performance of formulation requirements. MILSPECs found to

drive the use of hazardous material will be the subject of an investigation for alternatives. Alternatives examined should include other MILSPECs or commercial specifications specifying a less hazardous alternative.

2.3 Establishment of a Pollution Prevention Baseline

A baseline will be established for all hazardous material and hazardous waste integral, required, or produced from the support of the NSSN. The Pollution Prevention baseline will be based on the material requirements from the 688I. For those cases where no data is available, the baseline will be the hazardous material or waste condition as initially identified by the System Integration Teams. This baseline will serve as a basis for further Pollution Prevention action, and will serve as a reference for assessing the effectiveness of Pollution Prevention actions.

A preliminary analysis of the baseline will be performed. This preliminary analysis will result in a prioritization for further Pollution Prevention action. **The purpose of the prioritization is to identify those areas where Pollution Prevention action will present the most value over the life cycle of the NSSN.** The prioritization will be at the discretion of the ship contractor Environmental Compliance System Integration Team, subject to review by the Environmental Manager. The prioritization shall include consideration for:

- Ozone Depleting Substances and other substances subject to statutory phase outs or bans
- Substances identified by Puget Sound Naval Shipyard as presenting high disposal costs
- Substances which represent high life cycle releases to the environment
- Substances which represent high life cycle cost (dollars) to the Navy
- Extremely Hazardous Substances/Hazardous Air Pollutants/Toxic Chemicals
- Newport News Shipyard Environmental Compliance Study
- Other Hazardous Material/Hazardous Waste
- Newport News Shipyard Solid Waste Study

2.4 Analyses of The Hazardous Material/Hazardous Waste, The Process With Which It Is Associated, and Pursuit of Alternatives

Based on the Pollution Prevention Baseline, alternatives to hazardous materials or hazardous waste generating processes will be pursued. The pursuit of alternatives can be a complex task, involving not only the identification of a less hazardous material, but also the actual performance of the potential alternatives with regard to the specific application.

Navy resources available to assist the Systems Integration Teams are summarized in section 5, "Pollution Prevention Resources". The resources consist of information on previous research on alternatives and resources that can assist Systems Integration Teams in performing trade-off

analyses and performance testing of alternative materials. The preferable alternative to a hazardous material is the elimination of any hazardous material requirements.

The pursuit of alternatives will be carefully documented. If the decision is ultimately made to include requirements for hazardous material use, the rationale for that decision will be documented in the HM information products. The documentation of tradeoff analyses and/or the rationale for requiring hazardous material will be compiled in the Programmatic Environmental Analysis (Appendices P&R).

Life Cycle Cost analyses have an active role to play in the Pollution Prevention program. Where trade-off analyses with the Pollution Prevention Baseline are performed, documentation of the analyses should include life cycle cost estimates of the materials and processes concerned. Cost estimates of individual systems should include the costs associated with hazardous materials and hazardous waste throughout the life cycle of the system. The ship contractor decision to include less tangible costs in estimates should take into account the suitability of available models to consider such costs.

2.5 Hazardous Material Control & Management (HMC&M) Action

The Pollution Prevention process will result in either reduction or elimination of the hazardous material requirement, acceptance of the baseline, or acceptance of a "less hazardous" alternative. If the decision has been made to accept the presence of a particular hazardous material or waste in the NSSN, provisions must be made for Hazardous Material Control and Management of that substance over the life cycle of the NSSN.

Depending on the nature of the hazardous material required in the system, a decision will be made by the ship contractor and the participating manager GFE contractor with regard to identification of HMC&M requirements. If the substance is an integral component of a system and the primary concern is ultimate disposal of the system itself, identification of all HMC&M considerations may not be necessary. If the substance is a consumable material or hazardous waste that is associated with operation, maintenance, or support of the NSSN, identification of all appropriate HMC&M considerations shall occur. Questions regarding HMC&M requirements shall be directed to the Environmental Manager.

HMC&M information will be documented in the Integrated Logistics Support map for hazardous material/hazardous waste (Appendix P and Appendix R of the Programmatic Environmental Analysis) for each hazardous material identified for use in control and management of the material following NSSN delivery.

2.6 Preliminary NSSN Disposal/Demilitarization Concept

A preliminary disposal concept will be assembled based on existing submarine demilitarization / disposal data from Puget Sound and the final "hazardous material map" of the NSSN resulting from identification of hazardous materials in the NSSN. Offloading of hazardous material supplies and repair parts and their hazardous material content after decommissioning will also be considered. Hazardous material from the offload will be identified from the NSSN specific Shipboard Hazardous Material List. The Environmental Manager will compile the disposal information and prepare the preliminary disposal concept, which will comprise Appendix T of the Programmatic Environmental Analysis. The intention of this concept is not to dictate specific NSSN disposal procedures, but to provide a hazardous material reference for future NSSN disposal operations based on the physical makeup of the NSSN and past experience.

3 DOCUMENTATION AND ASSESSMENT OF THE POLLUTION PREVENTION PROGRAM

3.1 **Pollution Prevention/HMC&M Documentation**

This Plan and the information resulting from the plan are elements of the Programmatic Environmental Analysis. Pollution Prevention information in the Programmatic Environmental Analysis will serve two primary purposes: (1) it will be a single common source of documentation for program Pollution Prevention activities, studies, data, etc., and (2) it will provide the pool of information from which the Annex E is written. The Pollution Prevention information in the Programmatic Environmental Analysis will be updated and referenced as the Pollution Prevention program proceeds and additional information becomes available.

Figure 2 depicts the Programmatic Environmental Analysis documentation. The NSSN Pollution Prevention Plan contains requirements for and general descriptions of the deliverables depicted within the shaded boxes. The Participating Manager's will impose appropriate Contractor Data Requirements Lists and Data Item Descriptors on their Contractors to obtain the necessary data. PMO 450 will impose similar Contractor Data Requirements Lists and Data Item Descriptors on the Ship Contractor such that the necessary data is also obtained from the Ship Contractor's Subcontractors and Vendors. The collected information will be available to revise and update the NSSN disposal concept, the NSSN Shipboard Hazardous Material List, the Navy-wide Shipboard Hazardous Material List, and an Authorized Use List for use at Navy facilities performing maintenance and repair of NSSN equipment and equipage.

The following paragraphs define the description and location of Pollution Prevention/HMC&M Appendices in the PEA:

3.1.1 *Appendix D: NSSN Pollution Prevention Plan*

This Pollution Prevention Plan submitted by PMO 450

3.1.2 *Appendix G-J: NNS NSSN Solid Waste and Commodity Studies*

Hazardous material alternatives researched in the following areas by Newport News Shipbuilding:
Appendix G: Environmental Compliance Study
Appendix H: Solid Waste Management Study
Appendix I: Refrigerants, Oils, and Lubricants
Appendix J: Adhesives, Solvents, Welding and Paint Consumables

3.1.3 *Appendix L: Ship contractor Pollution Prevention Program Plan*

The Pollution Prevention Program Plan submitted by the ship contractor will incorporate major subcontractors input. This Pollution Prevention Plan will contain the contractors measures and management strategy for the life cycle elimination, reduction or control of hazardous materials within each system or subsystem.

3.1.4 *Appendix O: Puget Sound Submarine Disposal Data*

Types, quantities, locations of most common hazardous materials found during disposal of previous submarine classes. Current disposal methods, cost data

3.1.5 *Appendix P: Ship Contractor Hazardous Material Information Product.*

The product will include records of the decisions as part of the trade-off analyses made during the systems engineering process regarding the use of integral Hazardous Material or the use of Hazardous Material during the logistic support of the NSSN.

The Hazardous Material information product will be furnished by the ship contractor. The Hazardous Material information product will include the fields listed in Figure 4 which will include information on an individual system integration team basis. The individual system integration teams will provide specific information for individual assemblies/parts under their cognizance.

This product will be used for Integrated Logistics Support planning on a continual basis. The Hazardous Material information product will also be used to produce a hazardous materials map and an Integrated Logistics Support map (DID TBD). The Integrated Logistics Support map will be a listing of hazardous materials required for the operation, maintenance, and support of the NSSN by nature of hazardous material, and quantities per appropriate unit.

This appendix will also include the hazardous material map to be provided by the ship contractor. This hazardous material map will contain a listing of hazardous material required for operation, maintenance, and support of the NSSN by material, and quantities per appropriate unit. The hazardous material map will be constructed in accordance with DID TBD.

3.1.6 *Appendix Q: Recommended NSSN Shipboard Hazardous Material List (SHML).*

The NSSN SHML will list by National Stock Number and/or Navy Item Control Number each of the parts required for the logistic support of the NSSN containing integral Hazardous Material or the products approved for the logistic support of NSSN parts.

This appendix, which is part of the provisioning technical documentation, will be provided by the manufacturers to the supply support manager.

3.1.7 *Appendix R: Government Furnished Equipment Hazardous Material Information Product*

The product will include records of the decisions made during the systems engineering process regarding the use of integral Hazardous Material or the use of Hazardous Material during the logistic support of the NSSN.

The Hazardous Material information product will be furnished by the Participating Manager's contractors. The Hazardous Material information product will include a hazardous material map and an Integrated Logistics Support map for hazardous material/hazardous waste identifying the fields listed in Figure 4 which will include information on an individual part basis for each piece of GFE. The individual manufacturers, vendors, and suppliers will provide specific information for each part furnished.

3.1.8 *Appendix S: Participating Managers Program Environmental Documentation*

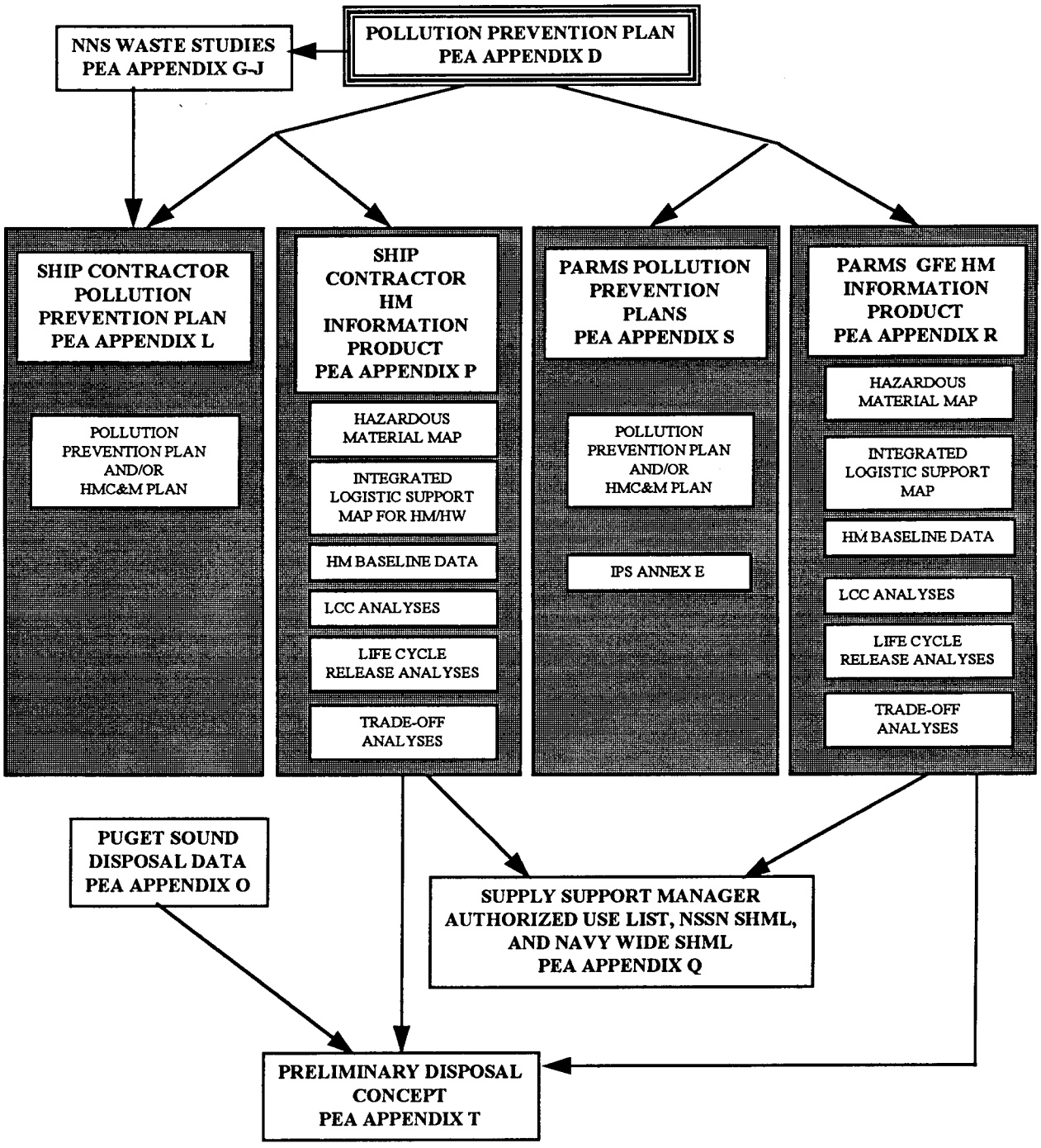
Participating Managers will include HMC&M plans, Annex E documentation, and Pollution Prevention Plans in this appendix. Participating Managers Pollution Prevention Plans will contain the management strategy including functions and responsibilities for the life cycle elimination, reduction or control of hazardous materials for the Government Furnished Equipment.

The contractor and subcontractor will submit hazardous material information described in the tasks listed below. This information will be incorporated into the Participating Managers Pollution Prevention Plans.

3.1.9 *Appendix T: Preliminary NSSN Disposal Concept*

This appendix will contain a general disposal concept based on previous submarine classes. PMO 390 will develop the preliminary concept to be reviewed by the Environmental Management Team to be incorporated into the Programmatic Environmental Analysis.

Figure 2: Programmatic Environmental Analysis Documentation



3.2 Pollution Prevention Plan Program Database

In accordance with the program intentions to operate in a digital data environment, provisions and procedures will be established to make all program Pollution Prevention information available electronically to ship contractor and program personnel through the Program Product Definition Database. This includes ship contractor and PARM Pollution Prevention plans.

Under the guidance of PMO 450T31 the ship contractor will define the boundaries and elements of their hazardous material information product database, incorporate data provided by the Environmental Compliance Team, facilitate the database development and integration into the Program Product Definition Database. The participating managers will define the database requirements for their contractors in coordination with the ship contractor.

3.3 Plan Metrics

The Environmental Manager will continually assess progress of the Pollution Prevention program. There are two primary metrics that will be used to guide implementation of this Pollution Prevention plan: life cycle releases to the environment, and life cycle cost to the Navy (in dollars).

3.3.1 *Life Cycle Releases To The Environment*

The NSSN Pollution Prevention program strives to cut estimated life cycle releases to the environment of hazardous material and hazardous waste from the identified baseline, as defined in paragraph 2-3. These reductions will support the DOD and Navy goal resulting from Executive Order 12856 to reduce hazardous releases to the environment to the maximum extent practicable.

3.3.2 *Life Cycle Cost*

The goal of the NSSN Pollution Prevention program is to reduce the life cycle cost to the Navy (in dollars), of procuring, using, and properly disposing of hazardous materials and hazardous waste. Life cycle cost analyses will be performed by the ship contractor as directed by the Program Office to the extent necessary to provide life cycle cost differences between identified hazardous material and competing alternatives. The purpose of these life cycle cost estimates is not necessarily to arrive at a complete and total cost of a particular hazardous

material, but to provide input to the engineering decision making process with regards to life cycle cost differences between alternatives under consideration.

The cost elements listed in Figure 3 shall be considered by the ship contractor when performing cost estimates in a tradeoff analysis. Major cost drivers, or cost sensitive elements, shall be included in the cost analysis. Cost elements determined to be insignificant, or cost elements deemed to vary insignificantly between alternatives, need not be included in the analysis. Documentation of the analysis will describe the assumptions made in the cost analysis, and any of the listed cost elements excluded from the analysis, with rationale.

Figure 3: Life Cycle Costing Elements

Procurement	**Potential Legal/Environmental Liability**
Transportation	**Medical Surveillance**
Handling	**Facilities**
Monitoring	**Support Equipment**
Training	**Emergency Response**
Personal Protection	**Disposal**

3.4 Releases vs. Cost Trade-Offs

In those cases where the benefits of reduced releases conflict with higher life cycle costs to the Navy, a decision will be made by the Environmental Manager based on the best information available from the tradeoff analyses. In the absence of a suitable model to accurately quantify environmental impacts in terms of dollars, these decisions will be subjective ones. The decision shall consider not only the quantity of releases vs. dollars cost to the Navy, but also the nature of the releases (toxicity, geographic location of expected releases, etc.).

In these types of cases, the rationale used in making the decision shall be documented in the Hazardous Material Record Of Decision (Trade-Off Analyses, Appendices P&R).

3.5 Assessment

Progress towards the plan metrics will be evaluated by PMO 450T31 using EB's bi-monthly Hazardous Material report (referred to in Figure 4).

The reduction in releases to the environment will be represented in each case # by the difference between the estimated life cycle baseline releases and the estimated life cycle releases of the selected alternative. The summation of these fields and their difference will ultimately result in

the total estimated life cycle releases, by chemical, in pounds; and the reduction in releases achieved from the baseline as a result of pollution prevention efforts.

The reduction in life cycle cost to the Navy will be represented by the difference between the 688I "baseline" and "alternative selected" life cycle cost fields.

In reference to Figure 4, the following categories specifically describe the content of the Hazardous Material Information Product:

Figure 4: Hazardous Material Information Product

Administrative

- Case Number
- Date of latest update
- Associated component/part/assembly
- Shipboard Hazardous Material List/Assembly Level

Nature of the Hazardous Material/Hazardous Waste

- Name of baseline Hazardous Material/Hazardous Waste
- Life Cycle Cost
- Estimated life cycle releases to environment

Documentation of Metrics for Alternatives

- Alternatives considered
- Life Cycle Cost Assumptions
- Life Cycle Cost of alternative considered
- Estimated life cycle releases to environment of alternatives considered
- Record of Decision & Summary of Trade-Off Analyses

Hazardous Material Map

Integrated Logistics Support Map for Hazardous Material/Hazardous Waste

3.5.1 *Administrative Data*

Case Number. The Case number will be an arbitrarily assigned number that will represent each assembly of the NSSN. The term assembly refers to a number of parts or subassemblies or any combination thereof joined together to perform a specific function

(e.g., fan assembly, audio frequency amplifier). The distinction between an assembly and a subassembly is not always exact; an assembly in one instance may be a subassembly in another (i.e., when it forms a portion of an assembly). A combination of assemblies mounted together are normally capable of independent operation in a variety of situations.

Date of Latest Update. The date of the latest update will be the last date that the case had data revised or updated.

Associated Component/parts/assembly. A listing of the associated manufacturers part numbers and part names (nomenclature) will be included in the administrative portion.

Shipboard Hazardous Material List/Assembly Level. An assembly Shipboard Hazardous Material List of parts containing integral hazardous material or a consumable containing hazardous material used aboard ship to service the assembly.

Authorized Use List. An assembly AUL to identify Hazardous Material used ashore to service the assembly.

3.5.2 *Nature of the Hazardous Material/Hazardous Waste*

Alternatives Considered. Name and description of baseline used per case number. First, state whether a comparable assembly exists on the 688I. The baseline, if it exists, will list hazardous material/hazardous waste associated with a comparable assembly from the 688I class. This baseline will be used to evaluate the hazardous material requirements for comparable assemblies on the NSSN or the amount of hazardous waste produced by comparable assemblies on the NSSN.

Life Cycle Cost. Life cycle cost differential of hazardous material/hazardous waste associated with comparable assemblies between the 688I and the NSSN. The life cycle cost differential is between the selected alternative for the NSSN and the comparable assembly on the 688I. In cases where assemblies exist on the NSSN but not on the 688I, the life cycle cost will simply be calculated using the NSSN data.

Estimated Life Cycle Releases to the Environment. Estimated Life Cycle Release differential to the Environment from Hazardous Material/Hazardous Waste. For each assembly, the estimated life cycle releases of Hazardous Material/Hazardous Waste will be calculated on an individual chemical constituent basis. Chemical constituents on EPA's List of Lists will be used. The estimated life cycle release differential is the difference between the life cycle releases of the alternative selected and the life cycle releases of the comparable assembly of the 688I. Estimated releases in pounds will be calculated for releases to the air, water, and land. Land disposal of the assembly or component parts during operational, intermediate or depot level maintenance and repair over the NSSN's life cycle will be included in the total estimated release to the environment. In addition,

disposal of the assembly during demilitarization and disposal of the entire NSSN will be included in the estimated total releases.

3.5.3 *Documentation of Metrics for Alternatives*

Alternatives Considered. This section will describe all alternatives considered by the System Integration Team to reduce or eliminate integral Hazardous Material in the assembly or reduce or eliminate Hazardous Waste estimated to be produced from the logistic support of the assembly over the life cycle of the NSSN. If no alternatives were considered that would result in reductions or elimination, this will be recorded.

Life Cycle Cost Assumptions. Describe the assumptions used to perform life cycle cost analyses. Assumptions would include items such as the escalation rate of hazardous waste disposal costs, escalation of the costs of parts containing hazardous material, and any other cost assumptions used for the analyses.

Life Cycle Cost of Alternatives Considered. This section will include all estimated life cycle costing of each alternative considered.

Estimated Life Cycle Releases To The Environment of Alternatives Considered. This section will contain all estimated life cycle releases to the environment of each alternative considered. An estimated release quantity will be included for each chemical constituent on EPA's List of Lists.

Record of Decision/Trade-Off Analyses. For future engineering design changes, a summary of the record of decision for those changes to the assembly will be included in this section. Only those engineering design changes affecting the hazardous material in or the hazardous waste produced from the assembly need be included. This section will also contain summaries of the established metrics (estimated releases and life cycle costs of alternatives considered for the assembly or its parts). In addition each summary will also consider other trade-off decision criteria that may be affected by reducing or eliminating hazardous materials such as performance, reliability, maintainability, safety, etc. of the assembly.

Hazardous Material Map. The Hazardous Material Map will identify the quantity of hazardous material contained in the NSSN including CFE, GFE, and COTS to the individual part level.

Integrated Logistics Support Map for Hazardous Material/Hazardous Waste. The ILS Map for hazardous material/hazardous waste will identify the hazardous material uses in the support of individual parts. It will also identify the individual processes (operation, maintenance, testing, repair) in which the hazardous material is used. In addition, data collected from section 4 will be integrated into the ILS Map.

4 HMC&M INTEGRATION INTO THE INTEGRATED LOGISTIC SUPPORT PROCESS

It is the goal of this plan to integrate appropriate Pollution Prevention/HMC&M considerations into all appropriate programmatic documentation and plans. Given the integrated nature of the ship contractor Design Build concept, the integration of logistics and Pollution Prevention efforts is especially imperative. The intention of this summary is to compile all Pollution Prevention/HMC&M logistics activities and planning in one location, as opposed to spreading the information throughout the Integrated Logistics Support Plan. Programmatically, this approach will allow more effective management of the Pollution Prevention program, and will provide Pollution Prevention program participants a clearer perspective on where their efforts fit into the Pollution Prevention program as a whole.

4.1 **Logistics Management**

In order to coordinate Pollution Prevention and HMC&M efforts in the Integrated Logistics Support process, the Environmental Manager will assign a Pollution Prevention/HMC&M representative to the Integrated Logistics Support Management team. This representative should be included in Integrated Logistics Support Management Team working groups or support teams in such a manner to coordinate the successful execution of logistics Pollution Prevention and HMC&M actions outlined in this plan.

4.2 **Pollution Prevention/HMC&M Data Elements**

Documentation of Hazardous Material information resulting from the Integrated Logistics Support process shall be integral to the documentation process described in Section 3 of this plan.

4.3 **Logistics Requirements and Funding Summary**

The responsibility for the Logistics Requirements and the Funding Summary will reside with each appropriate Integrated Logistics Support Manager. The development of the Logistics Requirements Funding Summary will include the following considerations:

- Resources for Pollution Prevention and HMC&M in the Integrated Logistics Support process.
- Provisions to notify affected resource sponsors of hazardous material introduction and hazardous waste generation, and provide budgetary information essential for execution of their respective HMC&M responsibilities.

4.4 Commercial Off-The-Shelf Items

The effects or impacts of hazardous materials found in Commercial Off-The-Shelf Items being considered for the logistic support of NSSN systems should be analyzed and documented by the ship contractor's System Integration Teams and the PARMS during the systems engineering process.

4.5 Integrated Logistic Support Elements

4.5.1 *Maintenance Planning*

In accordance with the Class Maintenance Plan, identify hazardous materials and hazardous waste associated with maintenance activities and functions, and pursue less hazardous material and process alternatives (ref. Ship Specification Section 081 (Maintenance)). All maintenance activities will be included in this effort, including Organizational, Intermediate, and Depot level maintenance. Document the presence of these hazardous materials and efforts to minimize their impact in the Programmatic Environmental Analysis. These hazardous materials requirements will form the foundation of the analysis of these materials by the various elements of the Integrated Logistics Support process as discussed in the following paragraphs.

4.5.2 *Packaging, Handling, Storage and Transportation*

Given the hazardous material requirements identified for each system, identify appropriate HMC&M considerations with respect to PHS&T for that particular material or waste. HMC&M considerations for each of these materials must be identified, based on the material and how it is used in the system. HMC&M information generated by the PHS&T element will feed back to the PEA Appendix P as indicated below. The PHS&T Integrated Logistics Support Manager is responsible for ensuring the following HMC&M considerations are accomplished:

- Storage restrictions and requirements
- Hazardous Material transportation and handling requirements, specialized packaging and Hazard Communication requirements.
- Presently accepted disposal methods and requirements

4.5.3 *Supply Support*

Given the hazardous material requirements identified for each system, identify appropriate HMC&M considerations with respect to Supply Support for that particular material. HMC&M considerations for each material must be identified, based on the material and how it is used in the system. HMC&M information generated by the supply support element will feed back to the Programmatic Environmental Analysis appendices as indicated below. The Supply Support manager is responsible for ensuring the following HMC&M considerations are accomplished:

- Ensure the supply support requirements associated with hazardous material and hazardous waste are satisfied. This includes providing Personal Protective Equipment and materials for response to spills, accidents, etc. (Appendix P)
- Compile a recommended Authorized Use List to be used in supply support of the NSSN following delivery (this Authorized Use List will form Appendix Q).
- Ensure that an Material Safety Data Sheet for all required materials and products is incorporated into the Navy Hazardous Material Information system.
- Define the interface between the NSSN supply support and the Navy Consolidated Hazardous Material Reutilization and Inventory Management Program, which is presently being implemented Navy wide. Incorporate the requirements of this interface into the NSSN Supply System concept.

4.5.4 *Facilities*

The Facilities Integrated Logistics Support Manager is responsible for ensuring that the following HMC&M considerations are accomplished:

- Coordinate with other Integrated Logistics Support element managers, ship contractor and NAVFAC to identify special facility requirements for Hazardous Material and Hazardous Waste. These requirements should be incorporated into the NSSN Facilities Management Plan, used to provide overall guidance to the Navy shore establishment on:
  - Where special facilities must be provided
  - Types of special facilities required
  - How requirements can be met using existing Navy facilities
  - Actions required for development and acquisition of these facilities
  - Necessary funding and action milestones to implement and maintain support of these special facilities

- Identify public Hazardous Material/Hazardous Waste notification and reporting requirements that will apply to shore activities servicing the NSSN, and coordinate planning efforts with those activities. This is to help the Navy's compliance efforts with the Environmental Planning and Community Right to Know Act of 1986.

4.5.5 *Technical Data*

The Technical Data manager (PMO 450TL) is responsible for ensuring that the following Pollution Prevention/HMC&M actions are accomplished:

- Establish measures to interface with other areas in efforts to address hazardous material concerns. Ensure data is available to address all Hazardous Material needs in all applicable publications.

- Existing MILSPECs governing the production of technical data have not yet been updated to reflect current trends and policies of the Federal government or DOD with regard to Pollution Prevention. When referencing these types of MILSPECs, qualification or tailoring of the specification should take place in order to place emphasis on the minimization of hazardous materials and hazardous waste.

- Procedures shall be implemented to review technical data furnished with Government Furnished Equipment and Commercial-Off-The-Shelf, for references to hazardous material and hazardous waste requirements. Procedures should be established to coordinate with the appropriate functional areas to pursue possible elimination and minimization options.

- Ensure that the Ships Hazardous Materials List and Submarine Atmospheric Control Manual Appendix A, include all Hazardous Material requirements for the NSSN as identified in the Authorized Use List compiled by supply support. (Procedures for updating the Ships Hazardous Material Lists are in SUP PUB 485).

4.5.6 *Human Systems Integration (System Safety)*

The System Safety Program (ref. Ship Specification Section 077 (safety)), has a close relationship with the Pollution Prevention program. Although health hazards and environmental hazards are not necessarily defined identically, substances identified for Pollution Prevention action are likely to require action in the System Safety Program from a safety perspective. As an integral element of the logistics analysis, the System Safety program should benefit from the integrated effort to identify and minimize hazardous materials and hazardous waste in the Pollution Prevention process. At the same time, the execution of system safety tasks may identify hazardous materials or waste not identified through other areas.

The System Safety manager should ensure that the following System Safety tasks from MIL-STD-882C (if used) should be tailored to interface with Pollution Prevention/HMC&M efforts and documentation:

Task 101: System Safety Program
Task 102: System Safety Program Plan
Task 201: Preliminary Hazard List
Task 202: Preliminary Hazard Assessment
Task 203: Safety Requirements / Criteria Analysis
Task 204: Subsystem Hazard Analysis
Task 205: System Hazard Analysis
Task 206: Operating & Support Hazard Analysis
Task 207: Health Hazard Analysis
Task 302: Test and Evaluation Safety
Task 303: Safety reviews of Engineering Change Proposals
Task 401: Safety Verification
Task 402: Safety Compliance Assessment

4.5.7 *Human Systems Integration (Training)*

The Navy Training System Plan will incorporate provisions for integrating pollution prevention training into appropriate onboard training systems. This training will be integrated into training for equipment and procedures that have been identified as posing environmental risk. The ship contractor shall identify those procedures and equipment that require pollution prevention training. Identification of those procedures and equipment may relate closely to system safety training requirements.

The Navy Training System Plan should also include provisions for an onboard training product that emphasizes general environmental awareness for all crew members. This training should include the risks to the Navy and individual crew members for violation of applicable environmental laws, and the actions individual crew members can take to help minimize the environmental impact of NSSN operations.

5 POLLUTION PREVENTION RESOURCES AND POCs

RESOURCES

Resource	Description	Access
Carderock Division NSWC		
• Shipboard Hazardous Material Database (SHMD)	An integrated collection of programs and procedures which allow the user to examine and extract a variety of Hazardous Material and process information from 27 connected databases. Chemicals identified include the Navy's 29 targeted chemicals/chemical families and those identified by the EPA's List of Lists. Useful tool for identifying Hazardous Material/HAZARDOUS WASTE associated with shipboard processes.	Specific instructions for access to database available from EB470 or the Environmental Manager
• Technical Assistance	CDNSWC will provide technical assistance for pursuing alternatives to specific chemicals and applications.	[POCs and phone #'s, etc. TBD]
Programmatic Environmental Analysis (PEA)		Pollution Prevention Appendices will be made available electronically to all program participants. Until then, direct requests for hard copy to the Environmental Manager
• NNS Study, NSSN Environmental Compliance	Study of previous submarine pollutant experience with several groups of commodities, including: ♦ Refrigerants ♦ Oils and Lubricants ♦ Paints ♦ Solvents ♦ Adhesives ♦ Welding Consumables The study's purpose is to analyze key materials and processes throughout the NSSN life cycle, provide alternatives that	Appendix G

	reduce impacts, and provide life cycle costs.	
• Puget Sound Sub Disposal Data		Appendix O
• NNS Study, NSSN Solid Waste Study	Study of previous submarine solid waste streams to facilitate environmental compliance of forward end design of NSSN. Discusses retaining onboard of all Hazardous Material/HAZARDOUS WASTE for transfer to shore activities.	Appendix H
HMC&M/HMIS CDROM	CDROM containing three references: • The HMIS (DOD repository for Material Safety Data Sheets (MSDSs)) • The Ships Hazardous Materials List (SHML), which acts as a Navy wide ships Authorized Use List (AUL) • The Hazardous Material User's Guide (HMUG) which provides protective information to supplement the technical data in the MSDSs	Available through the Environmental Manager

POCs

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Craig Hooper	NNS/E25	804-688-5407
David Lambert	NNS/E25	804-380-2373
Jimmy Smith	Environmental Manager	703-602-1227 x225
Russ Hrabe	PMO450T43	703-602-2378 x237
Pat Kilcoyne	SUPSHIP GROTON CODE 101R	203-433-5068

6 LIST OF ACRONYMS

ACM	Atmospheric Control Manual
AUL	Authorized Use List
CDNSWC	Carderock Division Naval Surface Warfare Center
CDRL	Contract Data Requirements List
CFE	Contractor Furnished Equipment
CHRIMP	Consolidated Hazardous Material Reutilization and Inventory Management Program
CMP	Class Maintenance Plan
COTS	Commercial-Off-The-Shelf
DID	Data Item Descriptor
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act (1986)
GFE	Government Furnished Equipment
HAZCOM	Hazard Communication
HM	Hazardous Material
HMC&M	Hazardous Material Control and Management
HMIS	Hazardous Material Information System
HMUG	Hazardous Material Users Guide
HW	Hazardous Waste
ILSMT	Integrated Logistic Support Management Team
ILSP	Integrated Logistics Support Plan
IPPD	Integrated Product and Process Development
IPS	Integrated Program Summary
IWSDB	Integrated Weapon System Database
LCC	Life Cycle Cost
LRFS	Logistics Requirements Funding Summary
LSA	Logistic Support Analysis
MPMP	Maintenance Program Master Plan
MSDS	Material Safety Data Sheet
NDI	Non-Developmental Item
NNS	Newport News Shipbuilding
NSSN	New Attack Submarine
NSWC	Naval Surface Weapon Center
PEA	Programmatic Environmental Analysis
PHS&T	Packaging, Handling, Storage, and Transportation
POC	Point of Contact
PPE	Personal Protective Equipment
SHMD	Ships Hazardous Material Database
SHML	Ships Hazardous Material List
SIT	System Integration Team
TBD	To Be Determined